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Book review: *"Tertions: Strange Algebraic Objects"*

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Krassimir Atanassov
Tertions: Strange Algebraic Objects
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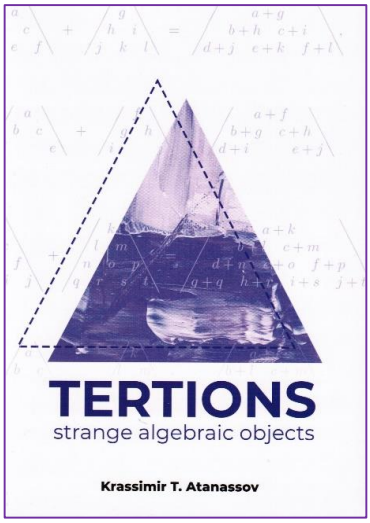

This new book has been germinating in Krassimir's fertile intellect for more than half a century. The essential idea was first created by him in 1971, when he was a schoolboy in Burgas Mathematical Secondary School. Twenty three years later, he published nine related preprints in the Institute of Microsystems, and in 1998, after some visits to Bulgaria by the reviewer, we published a paper, from which in subsequent years about forty related publications by other colleagues from many different countries were published. The aim of the present book is to construct models for objects, "tertions", having in some sense an intermediate place between complex numbers and quaternions. The word "tertion" was invented by Krassimir as a name of the new object by analogy with the word "quaternion".

The objects "vector" and "matrix" are well known: their simplest, but not trivial forms are the 2-dimensional vector and the (2×2)-dimensional matrix. In this book, the author describes an object that is intermediate between both the vector and the matrix, an "A-tertion". Their properties are elaborated in clear detail in the first chapter. The second chapter expounds V-tertions. The 'A' and 'V' tertions are so called because of their shapes, and the book is lavishly illustrated with diagrams of these objects and their fundamental algebraic properties. The following chapters are then in turn: on the representations of (a) the complex numbers by A- and V-tertions, (b) the (2×2)-matrices by A- and V -tertions, and (c) the quaternions by A- and V-tertions.

Those who are familiar with the previous imaginative and challenging research by Professor Atanassov in number theory, generalized nets and intuitionistic fuzzy logic will not be disappointed by this new volume of ground-breaking research by this prolific Bulgarian mathematician. It provides fertile ground for further development by experienced researchers and their candidates for higher degrees.